Introduction to DataScope Select REST API
A universe of data at your fingertips

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Participants can ask questions anonymously at anytime during the presentation using the Q&A Panel – we will cover these in the Q&A session after the presentation.

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AGENDA

• What is DataScope Select (DSS) ?
• DSS content landscape
• A few use cases
• Introduction to the DSS REST API
• Demo
• Tools, learning and support resources
WHAT IS DATASCOPE SELECT (DSS) ?

• A strategic hosted data delivery platform for non-streaming content.

• A full cross-asset offering with intelligently linked data for all Thomson Reuters DataScope content.

• Includes:
  A GUI, an FTP interface.
  A REST API.

New functionality and content are added with each release.
DATA REQUIREMENTS FOR DIFFERENT DEPARTMENTS

- Portfolio and Fund administration and valuation
  - Validated & evaluated pricing data.

- Trading systems
  - Historical data for back testing, corporate actions.

- Trade management, back office and settlement
  - Validated EoD prices for mark to market pricing.
  - A single data source to suit front, middle and back office.
  - Cross-referencing data.

- Regulatory compliance
  - Everything from intraday to EoD and historical, issue and sector information.

- Risk management
  - Validated & evaluated pricing data. Accurate data for EoD analyses.
  - Sectors, ratings, classifications, etc.
DSS USE CASES EXAMPLE

Mutual fund valuation

A mutual fund requires pricing data for all its holdings, for End of Day valuation, every day of the week, as soon as possible after exchange close. They:

1. submit the instrument list to DSS,
2. schedule an EoD data extraction triggered by data availability,
3. retrieve the pricing data from DSS,
4. calculate the NAV.
DSS USE CASES EXAMPLE

Bank’s portal for retail customers

The portal displays the portfolio value calculated using validated EoD data, allows sorting of assets by sector, currency or country, and displays a historical time series when an asset is selected.

The bank retrieves the EoD and historical pricing, as well as the reference data, from DSS.

This can be scheduled at End of Day, or On Demand.
Instrument cross referencing

To solve the issue of multiple instrument identifier types, DSS can be leveraged to convert between identifier types, either in batch jobs or on demand.
DSS USE CASES EXAMPLE

Instrument search tool

A developer can create an instrument search tool for traders and analysts, based on multiple selectable criteria.

This can be used to validate instrument identifiers, or find instruments corresponding to certain criteria.

The preferred output instrument identifier type can also be selected.
DSS ARCHITECTURE

- DSS servers hosted on the internet. No installation!
DSS DATA CONSUMERS

- DSS servers hosted on the internet.
  No installation!

- Consumers:
  Browser GUI
  Optional FTP retrieval
DSS DATA EXTRACTION MECHANISMS

• DSS servers hosted on the internet.
  No installation!

• Consumers:
  Browser GUI
  Optional FTP retrieval
  API

• Data extractions:
  Scheduled (GUI, API)
  On Demand (API only)
SCHEDULED DSS DATA EXTRACTION

Typical use case: regular extractions

5 steps:
1. Create instrument list on server
   Note: instrument search function
2. Create report template on server
# DSS DATA EXTRACTION: REPORT TEMPLATES

## Pricing Data
- End-Of-Day Pricing
- Intraday Pricing
- Premium End-of-Day Pricing
- Premium Pricing
- Single Historical Price
- Time Series Pricing
- Tick History

## Reference Data
- Bond Schedules
- Factor History (MBS & Tranche)
- Fund Allocation
- Ownership
- Ratings
- Symbol Cross Reference
- Terms and Conditions

## Pricing and Reference Data
- Composite

## Analytics Data
- Fixed Income Analytics
- StarMine
- Technical Indicators

## Corporate Actions
- Standard Events
- IPO Events
- ISO 10522

## Entity Data
- Audit
- Detail
- Hierarchy

## Commodities Data
- Independent price assessments
- Fundamentals
- Forward prices

## Estimates Data
- Summary & Detailed Estimates
- Actuals
- Company & Detail Level Footnotes

## News
- News Analytics
- News Items
- News Analytics Commodities
SCHEDULED DSS DATA EXTRACTION

Typical use case: regular extractions

5 steps:
1. Create instrument list on server
   Note: instrument search function
2. Create report template on server
3. Create schedule on server
4. Check schedule status
5. Retrieve results

This can be done through the GUI and/or the API.
SCHEDULED DSS DATA EXTRACTION DIAGRAM
ON DEMAND DSS DATA EXTRACTION

Typical use case: ad hoc data queries through API

4 steps:
1. Instrument list on consumer
   Note: instrument search API calls

2. On Demand request:
   Includes an instrument list, refers to a data type (report template), includes a field list

3. Check request status

4. Retrieve results
INTRODUCTION TO THE DSS REST API

• REST API, JSON content, OData protocol
  Previous version: SOAP API (XML content)

• .Net SDK (C#)

• Many API calls.
  Some mimic GUI capabilities, others are higher level (On Demand)

• Flexible
  24/7 flexible scheduling, field selection, embargo handling, etc.
  New features added with each release.
## COMPARISON BETWEEN THE DSS REST AND SOAP API

<table>
<thead>
<tr>
<th>SOAP API</th>
<th>REST API</th>
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<tbody>
<tr>
<td>• Old</td>
<td>• New</td>
</tr>
<tr>
<td>• XML content</td>
<td>• JSON content</td>
</tr>
<tr>
<td>• Only synchronous calls</td>
<td>• Follows the Odata protocol</td>
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<tr>
<td></td>
<td>• Synchronous &amp; asynchronous calls</td>
</tr>
<tr>
<td></td>
<td>• Enhanced schedules (embargo handling, triggers)</td>
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<tr>
<td></td>
<td>• Access to existing lists, templates, schedules, results</td>
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<tr>
<td></td>
<td>• Streaming of large result sets</td>
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<tr>
<td></td>
<td>• .Net SDK</td>
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<tr>
<td></td>
<td>• More API calls</td>
</tr>
<tr>
<td></td>
<td>• More data sets: commodities, energy, Corporate Actions ISO 15022 Events, RIC Maintenance reports</td>
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<tr>
<td></td>
<td>• Higher extraction limits</td>
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<tr>
<td></td>
<td>• Better performance and scalability</td>
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</table>
Demo
.NET SDK DEMO 1 WORKFLOW: SCHEDULED EXTRACTION

Steps:

1. Authenticate to the server
2. Create instrument list on server
   1. Create empty list
   2. Populate list
3. Create report template on server
   1. Select template
   2. Select fields
4. Create schedule(s) on server
5. Check schedule status
6. Retrieve results
.NET SDK DEMO 2 WORKFLOW: ON DEMAND CROSS REFERENCE

Steps:

1. Authenticate to the server
2. Create local instrument list
3. Create local field list
4. Create and run On Demand T&C request
5. Retrieve results
JAVA DEMO WORKFLOW: INSTRUMENT SEARCH

Steps:

1. Authenticate to the server
2. Create and run On Demand search request
3. Retrieve results
End of demo
DSS REST API LEARNING & SUPPORT RESOURCES

• Thomson Reuters Developer Community portal
  Tutorials, downloads, code samples, documentation, forum
  https://developers.thomsonreuters.com/

• C# example application
  Not only for C#!

• DSS web site
  https://hosted.datascope.reuters.com/
Q&A Session

We will try to answer as many questions as we can in the time we have left, but any we cannot get to will be transferred onto the Q&A forums for DSS at:

developers.tr.com